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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,813	02/24/2004	Jane Lu	2946-D-Z	1174

7590 06/20/2006
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EXAMINER

NORRIS, JEREMY C

ART UNIT PAPER NUMBER

2841

DATE MAILED: 06/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/784,813

Applicant(s)

LU ET AL.

Examiner

Jeremy C. Norris

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11,12,14,15,17 and 18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11,12,14,15,17 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 11, 12, 14, 15, 17, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,639,155 B1 (Bupp).

Examiner notes that the limitation “to which ball grid integrated circuit packages (46) are to be mounted thereon” is a statement of intended use and thus has been considered only to the extent that such a limitation impacts the structure of the device. Moreover, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural imitations. *Ex Parte Masham*, 2 USPQ 2d 1647 (1987).

Bupp discloses, referring primarily to figure 1 a thermally enhanced printed circuit (PC) wiring board comprising a relatively thin, conductive metal core layer (1) havng a thickness in the range of 5 – 15 mils (col. 5, lines 60-65) and having oppositely facing surfaces and one or more holes (10) in the metal core at each of plurality of

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through-core via sites, first and second thin rigidifying non-conductive laminate sheets (2, 3) each having a thickness within the range of 1.5 to 3 mils (col. 6, lines 25-35) attached to said oppositely facing surfaces, respectively, wherein at least one of said nonconductive laminate sheets has a glass fiber ingredient which allows for structural enhancement against thermal expansion coefficient mismatch between said metal core and said one of said nonconductive laminate sheets (col. 3, lines 45-55), and least one conductive circuit pattern (4, 5) on at least one of said thin rigidifying non-conductive sheets and a plurality of vias (10) thereon [claim 11] including a plurality of vias (10, one shown, a plurality referred to, col. 7, lines 1-25) made by plating build-up and connecting to the core from both the top and bottom sides thereof [claim 12], including one or more additional non-conductive layers (8, 9) thereon having a thickness within the range of 1.5 to 3 mils (col. 4, lines 50-65) [claim 14], including a plurality of vias selected from Type 1, Type 2, or Type 3 vias as defined herein (col. 4, lines 10-20) [claim 15].

Similarly, Bupp discloses, a thermally enhanced printed circuit (PC) wiring board for mounting ball grid integrated circuit packages (17) thereon comprising: a conductive metal core (1) layer in the range of 5 - 15 mils thick (col. 5, lines 60-65) and having oppositely facing surfaces and one or more holes (10) in the metal core at each of a plurality of through-core via sites, first and second thin rigidifying non-conductive fiberglass laminate sheets (2, 3, col. 3, lines 40-60) having a thickness in the range of 1.5 to mils (col. 6, lines 25-35) attached to said oppositely facing surfaces of said conductive metal core layer, respectively, wherein one of said nonconductive laminate

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sheets has a glass fiber ingredient (col. 3, lines 50-55) which allows for structural enhancement against thermal expansion coefficient mismatch between said metal core and said one of said nonconductive laminate sheets, at least one conductive said thin rigidifying circuit pattern on at least one of non-conductive sheets, and a plurality of vias selected from type 1 type 2 or type 3 vias made by plating build-up and connecting to the conductive metal core selectively from the top and bottom sides thereof, respectively (col. 4, lines 10-20) [claim 17].

Additionally, Bupp discloses, a thermally enhanced printed circuit (PC) wiring board and at least one ball grid integrated circuit package (17) mounted thereon, said PC wiring board comprising: a conductive metal core layer (1) in the range of 5 - 15 mils thick (col. 5, lines 60-65) and having oppositely facing surfaces and one or more holes in the metal core at each of a plurality of through-core via sites, first and second thin rigidifying non-conductive fiberglass laminate sheets (2, 3) having a thickness within the range of 1.5 to 3 mils (col. 6, lines 25-35) attached to said oppositely facing surfaces of said conductive metal core layer, respectively, wherein one of said nonconductive laminate sheets has a glass fiber ingredient (col. 3, lines 50-55) which allows for structural enhancement against thermal expansion coefficient mismatch between said metal core and said one of said nonconductive laminate sheets, at least one conductive circuit pattern (4, 5) on at least one of said thin rigidifying non-conductive sheets, and a plurality of vias selected from type 1 type 2 or type 3 vias made by plating build-up and connecting to the core selectively from the top and bottom sides thereof, respectively (col. 4, lines 10-20) [claim 18].

Response to Arguments

Applicant's arguments with respect to claims 11, 12, 14, 15, 17, and 18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 571-272-1932. The examiner can normally be reached on Monday - Friday, 9:30 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCSN



K. Cuneo
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